INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2005	**Park:** Shenandoah NP
Principal Investigator: Mr William H. Martin	**Office Phone:** 3048763219 **Email:** whmartin@crotalus.org
Address: Rt. 3, Box 804 Harpers Ferry, WV 25425 US	**Office Fax:** n/a

Additional investigators or key field assistants (first name, last name, office phone, office email):

No co-investigators

Permit#:
SHEN-2002-SCI-0022

Park-assigned Study Id. #:
SHEN-00058

Project Title:
Timber Rattlesnake Population Monitoring

Permit Start Date: Jan 01, 2002	**Permit Expiration Date** Dec 31, 2008
Study Start Date: Jan 01, 1990	**Study End Date** Dec 31, 2008

Study Status:
Continuing

Activity Type:
Research

Subject/Discipline:
Herpetology (Amphibians / Reptiles)

Objectives:

1. Locate overwintering dens and birthing rookeries. 2.Determine movements of snakes. 3. Determine timing of seasonal activities. 4.Determine rates of growth, shedding, maturation, reproduction, and survivorship. 5. Investigate annual variations in life history characteristis. 6. Investigate relationship between weather, acorn production, rodents, and rattlesnake reproduction. 7. Investigate relationship between weather and failure to bring the young to term. 8. Determine long-term population trends.

Findings and Status:

A general emergence began during the period of 18-20 April but due to inclement weather, emergence stalled, resuming from 8-13 May. Visits on 27 and 28 April, showed only 12 and 9 snakes respectively at two sites. Because of cool and wet weather during late May and much of June, snakes seen in June were mostly underweight and in poor shape. However chipmunks were observed to be abundant during that time and weather conditions were favorable for foraging during the balance of the season (July-September). The big reproductive cohort that gave birth in 2000 and 2003 should have bred this summer but whether or not they were able to make up for the weight deficit remains to be seen. (Snakes give birth in late summer one year after breeding and breeding is contingent on sufficient body fat.) Reproductive effort was not high this year but about the same as in 2004. Births began at around the usual time which is about 20 August. One out of five reproductive females found on 21 August had given birth. Due to the hot weather the birthing season was compressed and apparently finished before mid-September. Last pre-molt newborns were seen on 15 September. Warm temperatures through 5 October kept most snakes on summer range and then very cool, rainy weather inhibited the migration to the dens. Five and four snakes respectively, were seen at two overwintering dens on 4 October. The bulk of the population was apparently still on summer range at that time. Cool, rainy weather 6-14 October inhibited the migration to the dens Snakes appeared to spend little time on the surface at the dens this fall, probably on account of unfavorable weather. Three and two were seen at two closely-spaced dens on 18 October and then one was seen on 30 October. A snake was reported on distant summer range on 30 October and the last of the population apparently did not come in to the dens until early November, about 2 weeks past the usual time.

Eight days were spent in Shenandoah in 2005. A total of 54 snakes were seen. This included 39 adult, 6 sub-adults, 7 juveniles 1-3 years of age and two first-year young were seen.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?
No

Funding provided this reporting year by NPS:	Funding provided this reporting year by other sources:
0	1000
Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
n/a	0